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in many cases they are changed by their own activity and are not destroyed by hot alcohol. The enzyme nature of hydrogenase, however, is not to be doubted. It performs its function by liberating nascent hydrogen which unites with the oxygen carried by the oxidase to form water or hydroxyl groups; the latter can be employed for the formation of metabolic products. By these formations the oxidation of other substances is prevented. "Reductase" is a *contradictio in adjecto*. "Catalase" is merely a term to designate the decomposition of H_2O_2, and its place in the category of enzymes is extremely hypothetical. Amylocoagulase is the anti-enzyme of diastase in the sense that its action is just the opposite of that of diastase. The coagulase may be entirely obscured by the action of diastase, but it cannot be reversed. Cytocoagulase is another synthetic enzyme which acts in opposition to cytase.

The chief value of the book lies in the mass of experimental details and the ingenious methods devised for the study of enzymes. It will find its greatest usefulness among those especially interested in enzymes, as the treatment is rather technical.—CHAS. O. APPLEMAN.

Field manual of trees

An addition to the already numerous tree manuals has come[5] in the form of a thin pocket volume, 4.5 by 7 inches, bound in flexible leather, making it particularly convenient for field use. It is designed to include all the native and many of the introduced species north of Virginia and Kentucky and east of the prairie region. The features which recommend this manual are the numerous keys, all of which appear to be accurate and rather simple. They include separate ones for the genera based on (1) summer condition, (2) winter condition, (3) flowers, and (4) fruit, as well as keys for species under each genus and a general classification of the wood of the trees. The descriptions of the species seem to be good, but it is certainly unfortunate that such well known trees as the black and choke cherry should appear under such scientific names as *Prunus virginiana* and *P. nana* respectively, and that the flowering dogwood should be removed from the genus *Cornus*. Whatever may be the arguments of the systematist for such a course, it is certainly likely to lead to confusion, especially in a manual where no synonyms are given. One also misses the illustrations which have been a prominent feature of many recent volumes on trees.—GEO. D. FULLER.

MINOR NOTICES

Botanical researches of the Carnegie Institution.—The annual report[6] for the past year gives an idea of the various lines of research completed and in progress at the Desert Laboratory of the Carnegie Institution and of the reports that are soon to appear. The activities are so numerous and the scientific staff so large that all cannot be mentioned in a brief notice, but some are especially worthy of note.

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[5] SCHAFFNER, JOHN H., Field manual of trees, including southern Canada and the northern United States to the southern boundary of Virginia, Kentucky, and Missouri, westward to the limits of the prairie. Columbus (Ohio): R. G. Adams & Co. 1914. 16mo. pp. 154. Cloth $1.25. Limp leather $1.75.

[6] MACDOUGAL, D. T., Annual report of the director of the department of botanical research. Carnegie Institution of Washington, Year Book No. 12 for 1913:57–87. 1914.

Studies upon the Salton Sea by MACDOUGAL and several of his associates since 1907 have been very extensive, and include investigations of the soil and rock deposits, yearly analyses of the water as the sea continued to dry up, studies of the action of this water upon vegetable tissues, of the destruction of the flora upon the submerged areas, and of the revegetation of the sterilized islands and beaches. These investigations have given remarkable results from the unique phenomena of this semi-arid region. A few of the reports have appeared and more are to be published very soon. The modification of plants under the specialized conditions of the Salton area are being studied, as well as the effects of various climatic complexes. W. A. CANNON is continuing his investigations of the root characters of desert plants and has also extended his activities to include the roots of trees grown in the coastal climate of California. FORREST SHREVE and his associates have made critical studies of transpirational behavior in many very diverse plants, and also of growth rate and winter temperature in the Santa Catalina Mountains. H. A. SPOEHR has been investigating the photolytic effect of the blue-violet rays and their variations in polar radiation; while B. E. LIVINGSTON, with several assistants, has been making exact studies of the water relations of plants, including both the aerial and the soil conditions. The fruit development of the Cactaceae has been investigated by D. S. JOHNSON and the relationships and distribution of the same family by N. L. BRITTON and J. N. ROSE.—GEO. D. FULLER.

Annals of the Bolus Herbarium.—The first South African journal of botany has just made its appearance under the above title. The editor is Professor PEARSON of the South African College. The first number of the journal contains 40 pages, and it is announced that two parts will probably appear each year, and that four parts will constitute a volume. The reasons for a South African journal of botany are given, and seem to be well taken. The field for botanical investigation in South Africa is very large and but sparsely occupied, and the number of those directly or indirectly interested in botanical work is increasing. The new journal, as its name implies, will be mainly concerned with the botanical work inspired by Dr. BOLUS and with investigations conducted in connection with the Bolus Herbarium. This means that its field will be chiefly the taxonomy, ecology, plant geography, and economic botany of South Africa. There will also be included articles that may prove of assistance to those engaged in teaching botany. In a certain sense the journal will also be an organ of the newly established National Botanic Garden.

The first number contains the following papers: "On the flora of the Great Karasberg," with an introduction by PEARSON giving an account of the region, and a list of plants by F. and L. BOLUS and R. GLOVER; "Novitates